In The Claims:

Claim 1. (Currently Amended) A packet receiving method for use on a packet-switching network for handling each received packet, comprising the steps of:

allocating a descriptor and a data buffer, the descriptor for recording a link status between the descriptor and the data buffer and a reception status of a packet, and the data buffer for storing the packet, and the size of the data buffer being fixed;

activating an early interrupt mode and setting a logical segmentation size value;

dividing the data buffer by the logical segmentation size value into a plurality of segments, and setting an early receiving interrupt signal and a ready interrupt signal according to the logical segmentation size value;

in response to the early receiving interrupt signal, reading a part of the packet stored in the data buffer and do not perform a write-back operation after reading the part of the packet stored in the data buffer; and

in response to the ready interrupt signal, retrieving and forwarding a remaining part of packet stored in the data buffer.

Claim 2. (Previously Presented) The method of claim 1, further comprising the step of: performing a write-back operation on the descriptor after the whole packet stored in the data buffer have been forwarded so as to reset the descriptor.

Claim 3. (Previously Presented) The method of claim 1, further comprising the step of: asserting the ready interrupt signal when the whole packet has completely been moved to the data buffer.

Claim 4. (Currently Amended) The method of claim 1, further comprising the step of: asserting the early receiving interrupt signal, when a data amount of the packet already moved into the data buffer exceeds one of the segments.

Claim 5. (Original) The method of claim 1, wherein the packet-switching network is Ethernet.

Claim 6. (Currently Amended) A packet receiving apparatus, comprising:

a descriptor for handling a packet;

a data buffer linked to the descriptor for storing the packet, wherein the data buffer has a fixed size and is partitioned into a plurality of segments, with each dividing point being linked to an early receiving interrupt signal and the end of the packet being linked to an ready interrupt signal; and

a controller for receiving the packet, when the controller has moved a specified length of the packet above the logical segmentation size value to the data buffer, asserting the early receiving interrupt signal; when the controller has completely moved the whole packet to the data buffer, asserting the ready interrupt signal;

in response to the early receiving interrupt signal, starting to read the packet stored in the data buffer; and in response to the ready interrupt signal, retrieving and forwarding [~~the~~] a remaining part of the packet stored in the data buffer.

Claim 7. (Previously Presented) The packet receiving apparatus of claim 6, wherein the controller performs a write-back operation on the descriptor after all the packet data stored in the data buffer have been forwarded so as to reset the descriptor.

Claim 8. (Previously Presented) A packet receiving method for use on a packet-switching network for handling a plurality of received packets, comprising the steps of:

allocating one descriptor and a corresponding data buffer, the descriptor for recording a link status between the descriptor and the data buffer and a reception status of a packet, and the data buffer for storing the packet;

setting a logical segmentation size value and dividing the buffer into several segments according to the logical segmentation size;

determining whether the packet has completely been received;

if No:

asserting an early receiving interrupt signal, when a length of the packet above the logical segmentation size value has been moved to the data buffer;

checking the reception status of the packet in response to the early receiving interrupt signal;

retrieving a part of the packet stored in the data buffer when the reception status of the packet indicates that the packet has not completely been moved to the data buffer; and

retrieving a remaining part of the packet stored in the data buffer when the reception status of the packet indicates that the whole packet has completely been moved to the data buffer; and

if YES:

asserting a ready interrupt signal and performing a write-back operation on the descriptor so as to reset the reception status of the packet when the whole packet has completely been moved to the data buffer; and

retrieving the remaining part of the packet in response to the ready interrupt signal.

Claim 9. (Original) The method of claim 8, wherein the packet-switching network is Ethernet.

Claim 10. (Currently Amended) A method for processing packet, comprising the steps of:

~~allocating a plurality of descriptors and~~ initializing a plurality of data buffers for storing packets and a plurality of descriptors, each of said descriptors being ~~corresponding to~~ indicative of ~~one and only~~ one of said data buffers ~~for receiving one and only one said packet at the same time~~, wherein each said descriptor has a packet reception status and a link status recording information between the descriptor and the corresponding data buffer ~~records a reception status of one said packet and a link status between said descriptor and one corresponding said data buffer, wherein each said data buffer is used to store one said packet~~, wherein each said data buffer has a fixed size; ~~and~~

~~processing said packets by said descriptors and said data buffers, the steps of processing each said packet by one said descriptor and one said data buffer comprising the steps of:~~

setting a logical segmentation size value;

dividing each of said data buffers by said logical segmentation size value into a plurality of segments ~~in according to said logical segmentation size value~~;

receiving ~~at least partial~~ ~~a~~ packet and storing ~~the received part of~~ said packet in one of said data buffers; ~~and~~

outputting a segment of the data buffer when the segment is fully stored by a partial packet; and ~~at least a portion of said packet from said buffer in the unit of said segments~~

performing a write-back operation until the packet is totally output.

Claims 11-15. (Cancelled)

Claim 16. (Currently Amended) An apparatus for processing packet, comprising:

a plurality of descriptors ~~for handling a plurality of packets~~, wherein each of said descriptors handles one ~~and only one said~~ of packets at ~~the same~~ a time;

a plurality of data buffers for storing ~~said~~ packets, wherein each of said data buffers has a fixed size and is linked to one ~~and only one~~ of said descriptors; and

a controller for controlling said descriptors and said data buffers, wherein said controller divides each of said data buffers into a plurality of segments [[in]] according to a logical segmentation size value, wherein said controller controls each of said descriptors to receive at least a part of one of said packets and to store said ~~date buffer~~ received part of the packet in one ~~and only one~~ corresponding [[said]] data buffer, ~~said controllers also~~ controls each of said descriptors to output a segment of the data buffer when the segment is fully stored by a partial parket and performs a write0back operation until the packet is totally output, ~~at least a portion of said packet from corresponding said buffer in the unit of said segments~~

wherein, said descriptors and said data buffers are connected to a network card for receiving said packets, and said data buffers at least are in a system memory of a host computer wherein said network card is located.

Claims 17-20. (Cancelled)

Claim 21. (Newly Added) The method of claim 10, further comprises:

asserting an early receiving interrupt signal when the partial packet exceeds a capacity of the segment.

Claim 22. (Newly Added) The method of claim 10, wherein packets are received through a network card and said data buffers are located in a system memory of a host computer wherein said network card is located.

Claim 23. (Newly Added) The method of claim 10, wherein the fixed size of the data buffer is the same as the maximum size of a standard packet.

Claim 24. (Newly Added) The method of claim 10, further comprises:

adjusting said logical segmentation size value.

Claim 25. (Newly Added) The apparatus of claim 16, wherein an early receiving interrupt signal is asserted by said controller when the received partial packet exceeds a capacity of the segment.

Claim 26. (Newly Added) The apparatus of claim 16, wherein the fixed size of the data buffer is the same as the maximum size of a standard packet and said logical segmentation size value is adjustable.